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# RTD UPDATES: Area Studies

## *Data updates from the Resources and Technology Division*

Economic Research Service  
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### **Iowa/Illinois Study Links Agricultural Production and Natural Resource Data**

- Study area covers 40,700 square miles of west central Illinois and eastern Iowa; this predominantly corn/soybean area contains 13-17% highly erodible land and 3-4% highly leachable land.
- Farmers indicated they practiced conservation tillage on about 80% of corn and soybeans, including 85% of highly erodible lands in these crops.
- Farmers used soil/tissue testing for nutrients on 10% of land in corn and professional pest scouting on 5%, but the majority relied on dealer or standard recommendations.

This issue of RTD UPDATES summarizes the Iowa/Illinois Area Study survey data. It presents initial information on conservation practices, pest and nutrient management practices, chemical use, tillage methods, and farm type by sales class. In addition, soil characteristics were used to determine erodibility and leaching potential. The Area Studies project is a data collection and modeling effort designed to assess national policy impacts. The focus is on the development of multi-year, farm-level data that link production activities to environmental characteristics

for selected regions. The effort involves the Economic Research Service (ERS), the Soil Conservation Service (SCS), U.S. Geological Survey (USGS), and the National Agricultural Statistics Service (NASS).

The Iowa/Illinois Basin was one of four areas chosen in 1992. Others were the Upper Snake River Basin (Idaho), the Albemarle-Pamlico Drainage Area (Virginia, North Carolina), and the Georgia/Florida Coastal Plains. These sites were selected from those included in USGS's National Water Quality Assessment Program and were areas with significant cropland and agricultural chemical use levels.

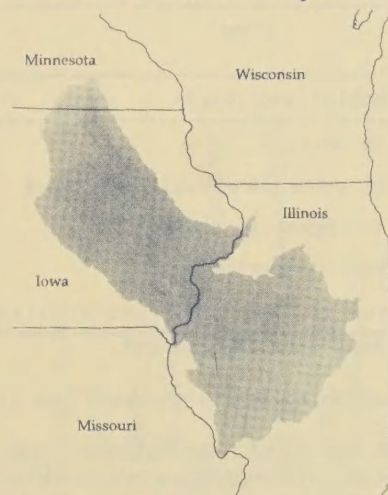
A survey in each area collected detailed information on production technologies, cropping systems, and agricultural practices at both the field and whole farm level. The survey sample points were chosen to correspond with National Resource Inventory (NRI) sample points. SCS conducts an NRI every 5 years, collecting soil, water, and other natural resource data for nearly a million sample sites nationwide. The use of the NRI points establishes a link between production activities and resource characteristics.

Contact: R. Keim or L. Nodine, RTD (202) 219-0402.

#### **About RTD UPDATES**

RTD UPDATES is a semimonthly series featuring data relating to agricultural resources, the environment, food safety, and technology. These UPDATES report recent data from surveys of farm operators and others knowledgeable about changing agricultural resource conditions, with only minimal interpretation or analysis. Please contact the individual listed at the end of the text for additional information about the data in this UPDATE. If you would like to be added to the mailing list or have other questions about RTD UPDATES, contact Richard Magleby, (202) 219-0436.

#### **Iowa/Illinois Study Area**





### Iowa/Illinois Area Study: Major crops and land use, 1992

Item	Alfalfa	Corn	Soybeans	Pasture	CRP	Set-aside	Other cropland*
Acres in crop or use	418,300	8,793,990	6,407,190	1,259,950	791,234	307,031	1,052,305
% Acres in crop	2.2	46.2	33.7	6.6	4.2	1.6	5.5
Yield per acres	3.7 tons	168.2 bu.	45.8 bu.	N/A	N/A	N/A	N/A
Acres in commodity program	N/A	6,675,330	N/A	N/A	N/A	N/A	N/A

\* The total number of acres of cropland in the Iowa/Illinois Area Study is 19,030,000.

N/A indicates not applicable.

### Iowa/Illinois Area Study: Conservation practices, 1992

Conservation practice	Alfalfa	Corn	Soybeans	Pasture	CRP	Set-aside	Total cropland
Percent of acres							
Conservation plan	58	57	52	31	60	57	53
Chiseling and subsoiling	6	37	28	*	0	18	28
Conservation cover	37	14	11	12	75	40	17
Contour cropping	13	10	8	0	0	5	9
Cover and green manure crop	9	1	1	4	*	3	2
Critical area stabilization	8	4	3	0	*	7	4
Crop residue use	10	45	44	*	*	22	39
Filter strip	11	4	3	*	0	5	4
Grassed waterway	42	40	31	10	21	27	35
Grasses and legumes in rotation	48	3	3	3	*	19	5
Terrace	12	7	6	0	10	9	6
Pasture and hay management	45	N/A	N/A	34	0	3	4
Planned grazing system	*	N/A	0	22	0	0	2
No-till	*	17	22	0	0	7	16
Ridge till	0	3	2	0	0	*	2
Mulch/other conservation tillage	19	59	58	*	0	32	50

\* Indicates too few observations for estimation, N/A indicates not applicable.

### Iowa/Illinois Area Study: Land erodibility and tillage, 1992

Item	Alfalfa	Corn	Soybeans	Pasture	CRP	Set-aside
% Highly erodible land (HEL)	53	17	13	49	52	28
% HEL acres in no-till	**	22	27	N/A	N/A	N/A
% HEL acres in other conservation tillage	17	63	59	N/A	N/A	N/A
% HEL acres in commodity program	N/A	70	N/A	N/A	N/A	N/A
% Non-HEL acres in no-till	**	16	21	N/A	N/A	N/A
% Non-HEL acres in other conservation tillage	20	61	60	N/A	N/A	N/A

\*\* Indicates less than one percent.

Notes:

Other conservation tillage includes ridge till, and mulch or other conservation tillage.

Twenty-two percent of all agricultural land in the Iowa/Illinois Basin Study Area is classified as highly erodible. Erodibility levels defined above are erodibility due to sheet and rill erosion only. Less than one percent of the area would be subject to compliance due to wind erosion only.

# Iowa/Illinois Area Study: Pest management practices, 1992

Practice	Corn	Soybeans	Alfalfa
Percent of acres in crop			
<u>Type of pest management:</u>			
Biological pest control	1	1	0
Pest resistant varieties	22	29	22
Non-pesticidal sprays	2	2	0
Destroy residues for host-free zone	8	10	80
Rotations	77	93	41
Pest control factor in timing & location	12	12	11
<u>Source of pest management advice:</u>			
On-farm pest specialist	3	2	0
Extension/univ./State/Federal	13	11	8
Chemical dealer	55	55	17
Professional scout	5	3	0
<u>Effect of advice on pesticide usage:</u>			
Advice increased usage	6	6	0
Advice decreased usage	12	9	0
Advice had no effect on usage	39	43	18

# Iowa/Illinois Area Study: Nutrient management practices, 1992

Practice	Corn	Soybeans	Alfalfa
Percent of acres in crop			
Soil nitrogen test	8	7	3
Tissue analysis	2	1	0
Manure usage	21	14	24
Manure rate based on analysis	1	1	0
<u>Most important factor influencing nitrogen use:</u>			
Fertilizer company recommendation	21	5	6
Consultant recommendation	5	1	1
Crop appearance	4	1	3
Soil/tissue test	10	2	0
Extension service recommendation	2	**	0
Standard amount for crop/rotation	53	10	8

\*\* indicates less than .5 percent

# Iowa/Illinois Area Study: Average application rates of pesticides, 1992

Pesticide	Lbs/acre	Percent of acres	Soybeans Lbs/acre	Percent of acres
<u>Herbicides:</u>				
2,4-D	0.3	10	0.4	7
Aciflourfen	--	--	0.2	13
Alachlor	2.4	28	2.4	7
Atrazine	1.0	76	--	--
Bentazon	0.5	7	0.7	25
Bromoxynil	0.3	11	*	*
Chlorimuron-ethyl	--	--	0.01	17
Clomazone	*	*	0.6	8
Cyanazine	2.3	22	--	--
Dicamba	0.4	24	--	--
EPTC	4.1	6	*	*
Glyphosate	0.7	**	0.4	8
Imazethapyr	*	*	0.1	42
Metolachlor	2.1	37	2.0	4
Metribuzin	0.01	**	0.3	6
Pendimethalin	1.3	1	1.0	21
Quizalofop-ethyl	--	--	0.1	7
Sethoxydim	--	--	0.2	10
Thifensulfuron	*	*	0.004	13
Trifluralin	1.0	**	0.8	34
<u>Insecticides:</u>				
Chlorpyrifos	1.2	10	*	*
Fonofos	1.3	3	*	*
Terbufos	1.1	9	*	*

\* indicates no use reported. \*\* indicates less than 1% of acres treated.  
-- indicates too few observations for estimation.

# Iowa/Illinois Area Study: Nutrient use, 1992

Nutrient	Lbs/acre/year	Percent of acres	Soybeans Lbs/acre/year	Percent of acres
Nitrogen	137	99	39	10
Phosphate	62	81	56	17
Potash	92	79	90	21



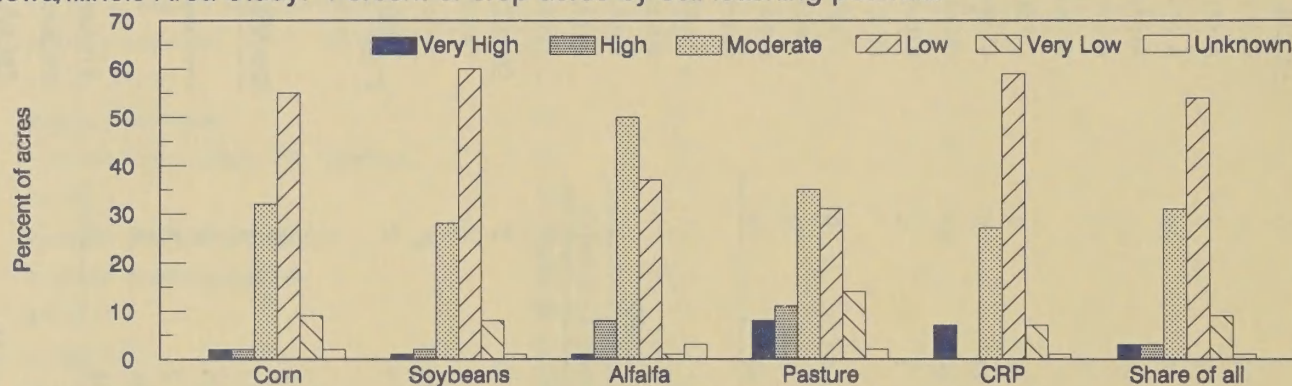
# Iowa/Illinois Area Study: Gross value of sales by primary farm type, 1992

Gross value of sales	Cash grains	Other field crops	Fruits & vegetables	Beef/hogs and sheep	Poultry & other livestock	Dairy	CRP only
Percent of farms							
0-\$9,999	1	50	50	5	40	0	78
\$10,000-\$19,999	2	50	0	2	10	0	17
\$20,000-\$29,999	2	0	0	1	10	8	0
\$30,000-\$39,999	3	0	0	2	0	0	5
\$40,000-\$59,999	7	0	0	5	10	15	0
\$60,000-\$99,999	14	0	0	13	10	23	0
\$100,000-\$249,999	41	0	25	32	10	39	0
\$250,000-\$499,999	19	0	0	24	10	0	0
\$500,000 and up	11	0	25	16	0	15	0
Total	100	100	100	100	100	100	100
Share of total	76	*	*	20	1	1	1

\* indicates less than one percent.

Source: 1992 Area Study Survey, Economic Research Service, USDA.

## Iowa/Illinois Area Study: Percent of crop acres by soil leaching potential\*



Soil leaching potential (SLP) = texture component + organic matter component + pH component

\* Potential of soils to leach highly soluble chemicals, based on intrinsic soil properties. Algorithm developed by J.B. Weber and R.L. Warren, North Carolina State University, in J.B. Weber and R.L. Warren. "Herbicide Behavior in Soils: A Pesticide/Soil Ranking System for Minimizing Groundwater Contamination" Proceedings of the Northeastern Weed Science Society Vol. 46, 1992.

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Economic Research Service  
U.S. Department of Agriculture  
1301 New York Avenue, N.W., Room 524  
Washington, DC 20005-4788

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